

## Abstract of the Disclosure

In some embodiments, the inventions includes a transmitter including a cycle encoding circuit to receive a data input signal and to provide a full cycle encoded signal in response thereto by continuously joining portions of different encoding signals. Some of the encoding  
5 signals have a different frequency than others of the encoding signals and some of the encoding signals have a different phase than others of the encoding signals. Data is represented in data time segments of the full cycle encoded signal and no data time segment has more than one cycle of an encoding signal. In some embodiments, a receiver receives the cycle encoded signal and recovers data of the data input signal. Still other embodiments are described and claimed.

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